



Department of Toxic Substances Control



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Arnold Schwarzenegger
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June 27, 2005

Ms. Beatrice L. Kephart
Chief, Restoration Program
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APPROVAL OF FINAL INTERIM REMOVAL ACTION WORKPLAN FOR SITE 8 – SPACE LAUNCH COMPLEX EAST, VANDENBERG AIR FORCE BASE, CALIFORNIA

Dear Ms. Kephart:

The California Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB) have reviewed the above subject document dated June 2005 which was prepared by Tetra Tech, Inc. on behalf of Vandenberg Air Force Base (VAFB). The Final Interim Removal Action (IRA) Workplan addresses proposed remediation of volatile organic compounds (VOCs) and perchlorate in groundwater beneath Site 8 - Space Launch Complex 4 East (SLC-4E). The Workplan provides details of the removal action technology, design, implementation plan, operation and maintenance, sampling plan, data management plan, and investigation-derived waste plan. The IRA Workplan also includes the workers health and safety plan to be implemented during removal action activities at the site.

Emulsified soybean oil (ESO) will be injected in the contaminant source area to reduce VOCs and perchlorate concentrations at Site 8 to interim cleanup goals of 100 µg/l for VOCs and 60 to 80 µg/l for perchlorate. The final cleanup goals will be established when the Feasibility Study is prepared for the site.

Prior to full-scale application of ESO, an initial bench test would be implemented to assess whether indigenous bacteria are capable of completely degrading VOCs and perchlorate. Additional groundwater monitoring wells will be installed near the source area and the bench test would be followed by a 6-month pilot test in the area southwest of the SLC-4E launch tower. After the pilot test, a validation of the appropriateness of the technology for Site 8 will be made and if it indicated that the pilot test was

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successful based on performance standards identified in the IRA Workplan, additional injection wells would be installed to address the remaining treatment area. A sequence of up to five injection well arrays, each consisting of seven injection wells (35 total injection wells), would be considered for deployment at the site. The rows of wells would be placed at 20 to 30-foot intervals. After the initial injection, soybean oil could be injected every 2 to 4 years using the existing well field, as needed. Monitoring data generated during the ESO IRA injection program will be evaluated and interpreted with respect to its ability to achieve the stated objectives. The collected data and evaluation of the data will be summarized in quarterly IRA letter reports. The fourth IRA letter report will contain all data collected during first year of field activities and any recommendations for follow-up work including O&M and frequency of future groundwater sampling and reporting. Following the first year, the Air Force will continue to monitor the groundwater quality at this site for the duration of the IRA project.

DTSC and RWQCB are satisfied that their comments raised in the May 9, 2005, May 18, 2005, and June 24, 2005 letters on the draft document have been adequately addressed and we hereby approve the final IRA Workplan.

We look forward to working with you to expedite the investigation and cleanup of the sites at Vandenberg Air Force Base. If you have any questions, please contact Mr. Quang Than of DTSC at (714) 484-5352 or Mr. Grant Himebaugh of RWQCB at (805) 542-4636.

Sincerely,



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